evolved gas at the surfaces of the platina. This was collected and found to be alike in quantity for each plate; and the quantity of hydrogen evolved at any one platina plate was in the same proportion to the quantity of metal dissolved from any one zinc plate, as was given in the experiment with a single pair (599, etc.). It was therefore certain that just as much electricity and no more had passed through the series of ten pair of plates as had passed through, or would have been put into motion by, any single pair, notwithstanding that ten times the quantity of zinc had been consumed.

728. This truth has been proved also long ago in another way, by the action of the evolved current on a magnetic needle; the deflecting power of one pair of plates in a battery being equal to the deflecting power of the whole, provided the wires used be sufficiently large to carry the current of the single pair freely; but the *cause* of this equality of action could not be understood whilst the definite action and evolution of electricity (518, 604) remained unknown.

729. The superior decomposing power of a battery over a single pair of plates is rendered evident in two ways. Electrolytes held together by an affinity so strong as to resist the action of the current from a single pair, yield up their elements to the current excited by many pairs; and that body which is decomposed by the action of one or of few pairs of metals, etc., is resolved into its *ions* the more readily as it is acted upon by electricity urged forward by many alternations.

730 Both these effects are, I think, easily understood. Whatever *intensity* may be (and that must of course depend upon the nature of electricity, whether it consist of a fluid or fluids, or of vibrations of an ether, .or any other kind or condition of matter), there seems to be no difficulty in comprehending that the *degree* of intensity at which a current of electricity is evolved by a first voltaic element, shall be increased when that current is subjected to the action of a second voltaic element, acting in conformity and possessing equal powers with the first: and as the decompositions are merely opposed actions, but exactly of the same kind as those which generate the current (652), it seems to be a natural consequence that

the affinity which can resist the force of a single decomposing action may be unable to oppose the energies of many decomposing actions, operating conjointly, as in the voltaic battery.

731. That a body which can give way to a current of feeble intensity should give way more freely to one of stronger force,